

Claims

1. A stable, aqueous froth comprising a) one or more copolymers or interpolymers of ethylene and/or 1-propene with or without other monomers selected from C₄ to C₁₀ olefins and having an ethylene or 1-propene content from about 2-98 weight percent; b) water; c) a frothing surfactant; and d) a gas; where the components comprise about: a) 35 to 75 percent, b) 35 to 75 percent and c) 1 to 6 percent of the combined weight of a), b) and c), and d) is present in an amount such that d) comprises at least 80 percent of the total volume of all components present in the froth.
2. The froth of Claim 1 which further comprises component e) a foam stabilizer selected from: alkylcellulose ethers, hydroxyalkyl cellulose ethers, hydroxyalkyl alkylcellulose ethers, guar gum, xanthan gum, and polyoxyethylene resins of at least 20,000 molecular weight; said component e) present in the amount of from about 0.05 to about 2 percent based on the dry weight of component a) polymer.
3. The froth of Claim 1 where component a) is a copolymer of ethylene with an alpha olefin comonomer of from 3 to 10 carbon atoms.
4. The froth of Claim 3 where the alpha-olefin comonomer is selected from 1-propene, 1-butene, 1-hexene and 1-octene and component a) has a melt index between about 0.5 and about 30 g/10 min as determined by ASTM D1238 (condition 190 deg C./2.16 kg).
5. A durable, open-cell foam comprising a) one or more copolymers or interpolymers of ethylene and/or 1-propene, with or without other monomers selected from C₄ to C₁₀ olefins, and which has an ethylene or 1-propene content from about 2-98 weight percent, wherein the cell size of the majority of cells of the foam ranges between about 5 and about 1000 micrometers (microns).
6. The foam of Claim 5 further characterized by having a plurality of its cells being substantially ellipsoidal in shape and the major axis of same being generally aligned in a parallel fashion with at least one major surface of the foam.
7. The foam of Claim 6 further characterized by having a majority of its cells being substantially ellipsoidal in shape.

8. The foam of Claim 6 further characterized by exhibiting a vertical wicking height, for a 0.9% aqueous saline solution after 5 minutes, of 8 cm or greater.
9. The foam of Claim 5 where component a) polymer of said foam exhibits a melt index (as determined by ASTM D1238 condition 190 deg C./2.16 kg) for ethylene-based polymers between about 0.5 and about 30 g/10 min and a melt flow rate (as
5 determined by ASTM D1238 condition 230 deg C./2.16 kg) for 1-propene-based polymers between about 0.7 and about 85 g/10 min.
10. The foam of Claim 5 where component a) comprises at least one copolymer of ethylene with an alpha-olefin comonomer of from 3 to 8 carbon atoms.
- 10 11. The foam of Claim 5 where component a) comprises an ethylene copolymer with 1-propene, 1-butene, 1-hexene or 1-octene, and which copolymer exhibits a melt index (as determined by ASTM D1238 condition 190 deg C./2.16 kg) of between about 0.5 and about 30 g/10 min.
12. The foam of Claim 5 where component a) comprises an ethylene copolymer with 1-
15 butene or 1-octene, and which copolymer exhibits a density of between 0.85 and 0.91 g/cc.
13. The foam of Claim 5 or 10 where the cell size of the majority of cells at a first major surface of the foam ranges between about 20 and about 100 microns and the cell size of the majority of cells at the other major surface of the foam ranges
20 between about 200 and about 1100 microns.
14. The foam of Claim 13 where the cell size of the majority of cells at the first major surface of the foam ranges between about 30 and about 80 microns and the cell size of the majority of cells at the other major surface of the foam ranges between about 300 and about 1000 microns and a gradient in cell size exists between the two said
25 major surfaces of the foam.
15. The foam of Claim 10 wherein component a) comprises at least one copolymer of ethylene and 1-propene and 1-propene comprises 2 to 35 weight percent of the copolymer.

16. The foam of Claim 5 wherein component a) comprises at least one copolymer of 1-propene and ethylene, and ethylene comprises 2 to 35 weight percent of the copolymer.
- 5 17. The foam of Claim 5 where a) comprises an ethylene copolymer with 1-octene, the copolymer exhibits a melt index (as determined by ASTM D1238 condition 190 deg C./2.16 kg) of between 1 and 20 g/10 min, a density of between 0.85 and 0.91 g/cc and a cell size gradient of the major portion of cells between one of the major surfaces of the foam and the other major surface exists and ranges between about 20 and about 1100 microns.
- 10 18. The foam of Claim 5 which further comprises at least one additive selected from calcium carbonate powder, titanium dioxide powder, polymer particles, hollow glass spheres, cellulose fibers, polymeric staple fibers and film-forming polymers.
- 15 19. The foam of Claim 5 which further comprises one or more of an antioxidant, alkylcellulose ether, hydroxyalkylcellulose ether, hydroxyalkyl alkylcellulose ether, styrenic latex, guar gum or xanthan gum.
- 20 20. The foam of Claim 5 which further comprises a multiplicity of particles of at least one odor absorbing particulate material, the average size of such particles being between about 1 and about 600 microns, and said multiplicity of particles comprising about 2 to about 18 percent by weight of the polymeric components of said foam.
21. The foam of Claim 20 wherein the particles of the at least one odor absorbing particulate material are particles of activated charcoal which have an average particle size of from 100 to 200 microns, and comprise from 4 to 12 percent by weight of the polymeric components of said foam.
- 25 22. The foam of Claim 5, at least one surface of which has a fabric-like, soft hand.
23. An absorbent article selected from a baby diaper, a feminine hygiene product, an adult incontinence hygiene product, a wound dressing pad, a surgical sponge, a food packaging pad, a wiping towel and a wiping sponge, where the article comprises a component made from the foam of Claim 5, 15 or 16.

24. A laminate comprising (a) at least one layer of the Froth of any one of Claims 1-4, and (b) at least one substrate layer on which the said Froth layer is laid, doctored or spread.
- 5 25. A laminate of Claim 24 wherein (b) the at least one substrate layer is prepared from a layer of a second Froth, a preformed open-cell foam, a thermoplastic sheet or film, a woven or non-woven fabric, or melt spun-bonded or melt-blown material.
26. A laminated structure comprising (a) at least one layer of the Foam of any one of Claims 5-19, and (b) at least one substrate layer to which said Foam layer is adhered.
- 10 27. A laminated structure of Claim 26 wherein (b) the at least one substrate layer is selected from a layer of a second open-cell foam, a thermoplastic sheet or film, a woven or non-woven fabric, or melt spun-bonded or melt-blown material.
- 15 28. An absorbent article selected from a baby diaper, a feminine hygiene product, an adult incontinence hygiene product, a wound dressing pad, a surgical sponge, a medical garment, a surgical drapery, a wiping towel, a wiping sponge and a food packaging pad, where the article comprises a component made from the laminated structure of Claim 27.
29. A method of making a durable, open-cell foam comprising the steps of:
- (1) generating the froth of any of Claims 1-4;
- 20 (2) thereafter subjecting said froth to at least one drying energy source to provide a durable, open-cell foam, in a fashion such that the volume of said resulting foam consists of not less than 70 volume percent of the volume of said froth; and
- (3) thereafter recovering the durable, open-cell foam.
30. The method of Claim 29 wherein step (2) the drying energy source is selected from a heated air generator, an infrared ray generator, a dielectric heating device, and any combination or multiplicity thereof.
- 25 31. The method of Claim 29 further characterized in that the froth is continuously generated and thereafter said froth is continuously subjected to the at least one drying energy source.

32. The method of Claim 29 further characterized in that said froth in step (2) is subjected to a combination of at least two drying energy sources, either simultaneously or in sequence.
- 5 33. The method of Claim 32 where in step (2) the drying energy sources are selected from at least one heated air generator, at least one infrared ray generator and at least one dielectric heating device.
- 10 34. The method of Claim 29 further characterized in that prior to or after recovery the open cell foam is, on at least one major surface, subjected to heating that softens substantially all of such major surface to a distance of at least 2 percent of the foam's initial thickness below the surface, and while so softened a major portion of that major surface is compressed with a pressure sufficient to convert a plurality of cells, at or near that major surface, to a three-dimensional ellipsoidal shape the major axis of which is aligned generally parallel to said major surface.
- 15 35. An aqueous dispersion comprising the resultant combination of (a) a semi-crystalline, thermoformable olefin polymer; (b) a long chain fatty acid of greater than 18 carbon atoms, (c) deionized water, and (d) a base, wherein the dispersion has a solids content of about 67 percent.